

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Patent Application

Inventor(s): Joseph Carmine Centanni et al.
Case: Centanni 2-32-9-22-5-7 (LCNT/126046)
Serial No.: 10/734,803 **Group Art Unit:** 2613
Filed: December 12, 2003 **Confirmation #:** 3519
Examiner: Curs, Nathan M.
Title: METHOD AND APPARATUS FOR MULTI-BAND OPTICAL
SWITCHING USING MULTI-PUMP PARAMETRIC DEVICES

**MAIL STOP APPEAL BRIEF-PATENTS
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450**

Dear Sir or Madam:

REPLY BRIEF

Appellants submit this Reply Brief to the Board of Patent Appeals and Interferences in response to the Examiner's Answer, dated November 12, 2008, in the Appeal of the above-identified application.

The Commissioner is authorized to charge any fees due, including extension of time and excess claim fees, to counsel's Deposit Account No. 50-4802/LCNT/**126046**.

REMARKS

In Section 10 (Response to Arguments) of the Examiner's Answer, the Examiner provides answers to different arguments made by Appellants in the Appeal Brief. The Examiner's answers are addressed below.

With respect to the Examiner's arguments regarding the teachings of Takeda, Appellants respectfully submit that these arguments have been addressed in Appellants' Appeal Brief.

With respect to the Examiner's arguments regarding a system according to the combination of Takeda and Bjarklev, Appellants respectfully maintain that Takeda, Bjarklev, and Cearns, alone or in combination, fail to teach or suggest at least the limitation of "a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal," as claimed in Appellants' claim 1.

In the Examiner's Answer, the Examiner asserts that "Takeda's pump wavelengths λ_{p1} and λ_{p2} alternate between opposing pass/block states...and for the combination an additional wavelength (based on the teachings of Bjarklev) is coupled with whichever pump wavelength of Takeda is currently being passed through the selector." (Examiner's Answer, Pg. 11, Emphasis added). The Examiner uses this assertion as the basis for concluding that a combination of Takeda and Bjarklev discloses "a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal," as claimed in Appellants' claim 1. Appellants respectfully disagree.

Appellants respectfully submit that Takeda and Bjarklev are devoid of any teaching or suggestion of applying a third pump signal at the output of a selector that selects one of two available pump signals to form a combined pump signal, as asserted by the Examiner, and, thus, that a combination of Takeda and Bjarklev fails to teach or suggest "a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal," as claimed in Appellants' claim 1.

As admitted by the Examiner, Takeda is devoid of any teaching or suggestion of applying a third pump signal at the output of a selector that selects one of two available pump signals to form a combined pump signal. Rather, Takeda merely discloses a selector that selects one of two available pump signals such that a single pump signal is made available.

Thus, since Takeda fails to disclose this limitation, the Examiner cites Bjarklev, asserting that Bjarklev discloses an additional wavelength and, thus, that Bjarklev discloses applying a third pump signal at the output of a selector that selects one of two available pump signals to form a combined pump signal. Appellants respectfully disagree.

Bjarklev is devoid of any teaching or suggestion of applying a pump signal to another pump signal, and, therefore, is devoid of any teaching or suggestion of applying a pump signal to another pump signal in the specific manner asserted by the Examiner (i.e., applying a third pump signal at the output of a selector that selects one of two available pump signals).

Rather, the portion of Bjarklev relied upon by the Examiner in support of this assertion merely includes a general statement indicating that “...two pumps will be needed to ensure polarisation insensitive operation.” (Bjarklev, Para. 0002, Emphasis added). This general statement in Bjarklev that two pump signals will be needed does not teach or suggest that two pump signals should be combined. Furthermore, even assuming arguendo that the cited portion of Bjarklev could be interpreted as meaning that two pump signals should be combined (which Appellants maintain it cannot), Bjarklev would still fail to teach or suggest that two pump signals should be combined in the manner asserted by the Examiner (i.e., by adding an additional pump signal at the output of a selector that selects between two other pump signals). There is simply no support in Bjarklev for the Examiner’s assertion.

Thus, since there is no teaching or suggestion to modify Takeda based on Bjarklev in the manner asserted by the Examiner, one skilled in the art, viewing Bjarklev in combination with Takeda, would not modify Takeda based on Bjarklev to apply a third pump signal at the output of the selector that selects one of two available pump signals to form a combined pump signal in the manner asserted by the Examiner. Therefore, a combination of Takeda and Bjarklev fails to teach or suggest applying a third pump signal at the output of a selector that selects one of two available pump signals to form a combined pump signal in the manner asserted by the Examiner.

Therefore, at least for these reasons, a combination of Takeda and Bjarklev fails to teach or suggest applying a third pump signal at the output of a selector that selects one of two available pump signals to form a combined pump signal, as asserted by the Examiner, and, thus, a combination of Takeda and Bjarklev fails to teach or suggest “a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal,” as claimed in Appellants’ claim 1.

Additionally, Appellants note that the Examiner has failed to establish a prima facie case of obviousness, because the modification of Takeda based on the teachings of Bjarklev in the manner suggested by the Examiner would change the principle of operation of Takeda. According to MPEP §2143.01.VI, “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).” The proposed modification of Takeda to combine an additional pump signal from Bjarklev with a pump signal output from a pump signal selector of Takeda, as asserted by the Examiner, would change the principle of operation of Takeda in that Takeda purposely selects between two pump signal such that only a single pump signal is passed through to be combined with an input signal. In this manner, modification of Takeda based on the teachings of Bjarklev in the manner asserted by the Examiner would change the principle of operation of Takeda of only combining a single pump signal with the input signal, not a combined pump signal. Therefore, the combination of Takeda and Bjarklev relied upon by the Examiner fails to establish a prima facie case of obviousness because the modification of Takeda based on the teachings of Bjarklev in the manner suggested by the Examiner would change the principle of operation of Takeda.

Furthermore, Cearn's also fails to teach or suggest the limitation of “a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal,” as claimed in Appellants’ claim 1.

Thus, since a combination of Takeda, Bjarklev, and Cearn's fails to teach or suggest the limitation of “a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal,” Appellants respectfully submit that the rejection cannot be maintained.

Furthermore, Appellants respectfully submit that since Takeda, Bjarklev, and Cearn's, alone or in combination, fail to teach or suggest a combined pump signal and, thus, fail to teach or suggest the limitation of “a second optical combiner (130₂) for combining an input data signal with the combined pump signal to produce a combined signal,” Takeda, Bjarklev, and Cearn's, alone or in combination, also fail to teach or suggest other limitations of Appellants’ claim 1.

First, since Takeda, Bjarklev, and Cearn's, alone or in combination, fail to teach or suggest a combined pump signal and, thus, fail to teach or suggest the combined signal of

Appellants' claim 1, Takeda, Bjarklev, and Cearns, alone or in combination, also fail to teach or suggest a non-linear optical element for imparting a non-linear effect on the combined signal to generate a number of optical bands based on a simultaneous three-signal interaction of the at least two optical pump signals and the input data signal, as claimed in Appellants' claim 1.

Second, since Takeda, Bjarklev, and Cearns, alone or in combination, fail to teach or suggest a combined pump signal and, thus, fail to teach or suggest the combined signal of Appellants' claim 1, Takeda, Bjarklev, and Cearns, alone or in combination, also fail to teach or suggest at least one optical splitter for separating the combined signal from a non-linear optical element into respective generated optical bands, as claimed in Appellants' claim 1.

Thus, at least for the reasons stated herein, Appellants respectfully submit that independent claim 1 is patentable over Takeda in view of Bjarklev and Cearns under 35 U.S.C. §103. Similarly, independent claim 18 recites relevant limitations similar to those recited in independent claim 1 and, therefore, for at least the same reasons discussed above with respect to claim 1, claim 18 also is patentable over Takeda in view of Bjarklev and Cearns under 35 U.S.C. §103. Furthermore, since all of the dependent claims that depend from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim also is patentable over Takeda in view of Bjarklev and Cearns under 35 U.S.C. §103.

Therefore, Appellants respectfully request that the rejection be withdrawn.

CONCLUSION

Appellants respectfully request that the Board reverse the rejections and pass the claims to allowance.

Respectfully submitted,



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